The PA identified the following 17 SWMUs and 2 AOCs at the facility:

**Solid Waste Management Units**

1. Container storage area
2. Chrome sump tank T-7
3. Cyanide sump tank T-8
4. Acid/alkaline sump tank T-6
5. Chrome reaction tank T-5 (surface)
6. pH adjustment tank T-2 (surface)
7. Cyanide destruct tank T-4 (surface)
8. Cyanate destruct tank T-3 (surface)
9. pH adjustment tank T-1 (surface)
10. Flash mix tank T-18 (surface)
11. Clarifier tank T-16 (surface)
12. Floc tank T-17 (surface)
13. Sludge tank T-15 (surface)
14. Bulk storage area
15. Building 408 pipeline area
16. Building 415 underground storage tank (UST) area
17. Building 405 sanitary sewer line area

**Areas of Concern**

1. Building 407 UST area
2. Building 405/408 UST area

Dames & Moore was contracted by Rockwell International to perform a three-phase site assessment at the Richardson facility, as part of a due diligence process. The Phase III site assessment found five areas of contamination at the facility (SWMUs No. 15 through 17 and AOCs No. 1 and 2), two of which the TWC Solid and Hazardous Waste Division found to be in violation (SWMU No. 15, AOC No. 2). The TWC compliance evaluation inspection, conducted on

February 12, 1991, requested that the violations be corrected by June 15, 1992. Recent discussions with TWC indicated that four of these five areas of contamination will probably be placed under the jurisdiction of TWC's Petroleum Storage Tank (PST) Division; the fifth area would probably be under TWC's Solid and Hazardous Waste Division. Under these circumstances, TWC will probably postpone any corrective action until jurisdiction has been formalized for all five areas of contamination (Britton, 1992).

Releases to the shallow perched ground water have been documented within four of the five areas of contamination (SWMUs No. 15 and 16 and AOCs No. 1 and 2) detailed by the Dames & Moore site assessment. Elevated levels of petroleum hydrocarbons have been detected within two former excavated UST areas (tank holds) and around the building 408 pipeline area; petroleum hydrocarbons, benzene, and toluene were found within the third UST tank hold area.

Diesel fuel has been found in facility-related storm sewers on two separate occasions. During the second incident, diesel fuel drained into nearby Duck Creek, where it was subsequently diked and pumped out for off-site disposal. Duck Creek flows southeast and eventually enters the east fork of the Trinity River, south of Lake Ray Hubbard.

All five areas of contamination were found to contain soils with elevated levels of petroleum hydrocarbons. One of the former UST tank areas also contained toluene and xylene (AOC No. 2); 1,1,1-trichloroethane and methylene chloride concentrations were detected in the soils surrounding the sanitary sewer line area (SWMU No. 17).

No documented releases have occurred from SWMUs No. 1 to 14. PRC recommends no further action for any of these units. PRC recommends further investigation of SWMUs No. 15 through 17 and AOCs No. 1 and 2 to determine whether corrective action is required.

Eight tanks are associated with the three wastewater system process operations. Tanks T-7, T-5, and T-2 (SWMUs No. 2, 5, and 6) are associated with the chrome reduction process; tanks T-8, T-4, and T-3 (SWMUs No. 3, 7, and 8) are part of the cyanide destruction process; and tanks T-6, T-2 and T-1 (SWMUs No. 4, 6, and 9) are involved in pH neutralization.

Wastewater from the pretreatment system is discharged to the Richardson Sanitary Sewer System. Drums of hazardous and nonhazardous waste are stored in the container storage area (SWMU No. 1), which underwent closure in 1989 and is now limited to storage for less than 90 days. Waste descriptions, the NOR waste number, EPA waste code, source, primary management unit, and disposal facility are listed in Table 2.

## 2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses documented releases to ground water, surface water, air, and on-site soils at the Alcatel facility.

Rockwell International contracted Dames & Moore to perform a three-phase site assessment at the Richardson facility, as part of a due diligence process. The assessment was partly intended to determine the vertical and horizontal extent of associated soil and ground-water contamination. As a result of this investigation, Dames & Moore identified contamination in the following five areas: (1) building 408 pipeline area (SWMU No. 15), (2) building 407 underground storage tank (UST) area (AOC No. 1), (3) building 415 UST area (SWMU No. 16), (4) building 405/408 UST area (AOC No. 2), and (5) building 405 sanitary sewer line area (SWMU No. 17). AOC No. 2 is an area located between buildings 405 and 408 (Figure 2).

The building 408 pipeline area contamination involves underground diesel fuel lines originally found to be leaking in 1971. In 1971, these lines were capped, abandoned in-place, and replaced by an aboveground supply line (Dames & Moore, 1992). Diesel-contaminated soil in the vicinity of the buried pipeline was discovered in 1986 during construction activities involving the expansion of building 408. In March and April 1986, Rockwell International and Chemical Waste Management (CWM) performed a Phase I site assessment. In May 1986, as a result of the remediation plan, about 2,500 cubic yards of affected soil were removed and aerated on-site; the soil was disposed of in the

Dallas/Fort Worth Landfill in Lewisville, Texas, in July and August 1986 (Dames & Moore, 1992). On June 30, 1986, TWC verbally approved landfilling of the treated soil as nonhazardous waste in a sanitary landfill; written approval of the landfill disposal was obtained from the Texas Department of Health on June 30, 1986 (Dames & Moore, 1992). The soil excavation was concentrated in the area of planned construction, near the northwest corner of building 408. Soil containing petroleum hydrocarbons was also found outside the planned construction area but was left in-place, because the total petroleum hydrocarbon (TPH) concentrations were below TWC's soil remediation guidelines (Dames & Moore, 1992).

The environmental investigations performed by Dames & Moore (Phases I, II, and III) obtained 56 soil samples within the building 408 pipeline area; nine of the samples contained petroleum concentrations exceeding the estimated TWC soil cleanup action levels. The test results indicated that the affected area covers about 32,000 square feet and extends to depths of 6 to 10 feet below ground surface (bgs). Two of seven ground-water samples analyzed were found to have TPH concentrations slightly above the detection limit of 0.5 part per million (ppm); their concentrations were 2.7 and 1.6 ppm. Both samples were collected from a perched ground-water zone within the same monitoring well but were sampled 3 months apart.

On March 23, 1986, during the site investigation, diesel fuel was discovered flowing in a storm sewer under Collins Boulevard and into Duck Creek. The exact source was never determined. On February 10, 1987, additional diesel fuel was encountered during trenching operations related to the installation of new sanitary sewer lines at building 408. An independent contractor pumped several gallons of diesel fuel onto Street A. The fuel subsequently ran into a storm sewer that drains into Duck Creek (Dames & Moore, 1992). Diesel fuel was then discovered in Duck Creek. Rockwell International notified the Texas Emergency Response Center (TERC) in Austin, Texas. Two containment dikes were built on the creek to contain the spill, and the diesel fuel was pumped out and disposed of off-site. Rockwell monitored the spill area for several weeks until all visible evidence of diesel was removed. Rockwell notified TERC and TWC by letter on February 23 and March 13, 1987, respectively, of the completion of cleanup activities on Duck Creek (Dames & Moore, 1992).

The building 407 UST area - the second area of contamination addressed by Dames &

Moore - is the site of a UST that was removed in 1988. Backfill material and perched water within the former excavated tank area (tank hold) were apparently contaminated by a 5-gallon diesel fuel spill that occurred while a drain-back line was being emptied during tank removal operations (Dames & Moore, 1992). A TPH concentration of 540 ppm was detected in a soil sample collected at a depth of from 4 to 6 feet bgs; ground-water measurements in the same location detected TPH concentrations of 10.0 and 3.4 ppm on June 16 and September 17, 1991, respectively. The volume of affected material may be as little as 30 cubic yards or may extend to depths of from 10 to 12 feet bgs (Dames & Moore, 1992).

The building 415 UST area involves petroleum hydrocarbon contamination within the sandy backfill in the former UST tank hold. TPH concentrations of 6.0 and 4.0 ppm were detected in ground-water samples collected from a well within the former tank hold (Dames & Moore, 1992). TPH concentrations in soil samples collected from 10 to 20 feet north, east, south, and west of the ground-water monitor well mentioned above were below the 10.0 ppm analytical limit for TPH. Samples were collected at depth intervals of from 4 to 6, 9 to 11, and 14 feet bgs. The volume of affected material is estimated to be as little as 30 cubic yards and may extend to depths of from about 10 to 12 feet bgs (Dames & Moore, 1992).

The UST at the building 405/408 area was removed in 1989 and found to be in good condition; however, spillage had occurred from overfill that affected the soil and perched ground water (TWC, 1992). Of the 10 soil samples collected in this area, only one was found to contain TPH concentrations above the analytical detection limit of 50.0 ppm; a concentration of 56.0 ppm was detected at a depth interval of from 9 to 11 feet bgs. Toluene was detected in two soil borings with concentrations of 3.1 and 3.9 parts per billion (ppb). Xylenes were present at soil boring B323, from depths of 4 to 16 feet at concentrations of from 2.3 to 3.5 ppb; and in soil boring B321, from depths of 4 to 6 feet at a concentration of 2.2 ppb. In well MW-10, ground-water analysis detected 59.0 ppm of TPH, 1.3 ppb of benzene, and 2.0 ppb of toluene. Test results indicate that trace amounts of petroleum hydrocarbons may be present at from 30 to 40 feet away from the building 405/408 excavation area (Dames & Moore, 1992).

Leakage from the building 405 sanitary sewer line area has resulted in the detection of low concentrations of petroleum and volatile hydrocarbons at depths of from 4 to 11 feet bgs.

Concentrations of 1,1,1-trichloroethane above analytical detection limits were found in nine of 23 soil samples. Three samples detected TPH values above detection limits, as follows: 87.0 ppm, 20.0 ppm, and 81.0 ppm. One borehole detected a methylene chloride concentration of 30.0 ppb. A trichloroethane concentration of 3.0 ppb was found in a separate borehole.

Two of the five areas of contamination previously discussed were recently cited by the Solid Waste Branch of TWC (TWC, 1992). The building 408 pipeline area (SWMU No. 15) and the building 405/408 UST area (AOC No. 1) were cited to be in violation of Texas Administrative Code (TAC) 335.4 - General Prohibitions. TWC requested that the violations be corrected by June 15, 1992. However, the Petroleum Storage Tank (PST) Division of TWC has recently recommended that four of the five areas of contamination be placed under its jurisdiction; the other area (building 405 sanitary sewer line area) will probably be referred to the TWC Solid and Hazardous Waste Division. In view of these developments, the two violations cited will probably be rescinded (Britton, 1992).

## 2.5 REGULATORY HISTORY

Rockwell International, the former owner, submitted a notification of hazardous waste activity to EPA on August 18, 1980. The facility submitted a RCRA Part A Permit Application on November 19, 1980. This application listed 11,000 gallons of container storage (S01) and a 306000-gallon-per-day treatment tank (T01). The application listed the following wastes: F001 (spent halogenated degreasing solvents); F002 (spent halogenated solvents); F003 and F005 (spent nonhalogenated solvents); F006 and F009 (electroplating sludges and solutions), F007 (spent cyanide solutions); D006 (cadmium); D007 (chromium); and D011 (silver).

On July 23, 1981, EPA granted Rockwell International status as an owner/operator of a hazardous waste management facility. The company has since closed all of the storage facilities in accordance with TWC-approved closure plans and submitted an Affidavit of Exclusion to request Part A withdrawal, dated August 29, 1991. Alcatel is presently a large-quantity generator, permitted to store hazardous waste for less than 90 days. Because of a change in ownership, Alcatel - the present owner - requested that, as of August 28, 1991, its company name replace that of Rockwell International on the NOR.

## TABLE 3

## SWMU AND AOC SUMMARY

Sheet 1 of 7

| | SWMU No. 1 | SWMU No. 2 | SWMU No. 3 |
|---|---|---|---|
| Description | Container storage area is located between buildings 414 and 415. The unit was designed to store drums of hazardous and nonhazardous waste for off-site shipment. | Chrome sump tank T-7 collects segregated chrome rinse waters as part of the wastewater pretreatment system (WPS). | Cyanide sump tank T-8 collec segregated cyanide rinse water as part of the WPS. |
| Startup | NA[a] | NA[a] | NA[a] |
| Date of Closure | Unit underwent RCRA closure on September 12, 1989, currently stores hazardous waste for less than 90 days. | The unit is active. | The unit is active. |
| Wastes Managed | Halogenated and nonhalogenated solvents (F001, F002, F003, and F005); soldering oils (D008); and other hazardous and nonhazardous waste streams | Chrome-bearing rinse waters (acids, solutions, and wastes) (F009) | Cadmium, cyanide, and heavy metal-containing plating solut (F007); cyanide and cyanide/h metal-bearing wastes (F009); and cyanide copper plating waste |
| Release Controls | Concrete slab with concrete berm surrounding the unit; slab is segregated and covered. | NA[a] | NA[a] |
| History of Documented Releases | None | None | None |
| Remedial Action Taken | NA[a] | NA[a] | NA[a] |
| Release Potential | Low | Cannot be determined | Cannot be determined |
| Potential Pathway | Soil, surface water, ground water | Cannot be determined | Cannot be determined |
| Reason for Release Potential | Access via potential crack(s) in concrete slab and berm | Not applicable | Not applicable |
| Need for Further Action | None | Cannot be determined | Cannot be determined |

Notes:

[a] NA = Information not available from file review

## TABLE 3

## SWMU AND AOC SUMMARY

Sheet 6 of 7

| | SWMU No. 16 | SWMU No. 17 | AOC No. 1 |
|---|---|---|---|
| Description | Building 415 UST area is associated with a former diesel tank hold found to have had a leaky tank pipeline. | Building 405 sanitary sewer line area has contaminated soil from a leaking sewer line. | Building 407 UST area was a former tank hold area that was contaminated by a diesel fuel spill. |
| Startup | NA[a] | NA[a] | NA[a] |
| Date of Closure | Tank was closed in-place in 1990. | Unit is believed to still be active. | The tank was removed in 1988. No other closure data were available. |
| Wastes Managed | Leaking diesel fuel | Petroleum hydrocarbons 1,1,1-trichlorethane, and methylene chloride | Leaking diesel fuel |
| Release Controls | NA[a] | NA[a] | NA[a] |
| History of Documented Releases | Diesel fuel leak was discovered in the line from the tank upon removal of the line in 1990. | Soil was found to be contaminated through Dames & Moore site assessment. | Diesel fuel spill occurred in 1988 during tank removal operations. |
| Remedial Action Taken | NA[a] | NA[a] | NA[a] |
| Release Potential | Originally high, but it may be lower if line was removed during tank closure operations. | High | Originally considered high, but it may be lower since tank was removed. |
| Potential Pathway | Soil, ground water | Soil, ground water | Soil, ground water |
| Reason for Release Potential | Documented release to soil and ground water | Documented release to soil; ground water was apparently not sampled but could have become contaminated through contact with affected soil. | Documented release to soil and ground water |
| Need for Further Action | Further investigation is recommended to determine whether corrective action is required. | Further investigation is recommended to determine whether corrective action is required. | Further investigation is recommended to determine whether corrective action is required. |

Notes:

[a] NA = Information not available from file review

TABLE 3

SWMU AND AOC SUMMARY

Sheet 7 of 7

| | AOC No. 2 |
|---|---|
| Description | Building 405/408 UST area was a former tank hold area that was contaminatred by gasoline spilling from overflow. |
| Startup | NA[a] |
| Date of Closure | The tank was removed in 1989. No other closure data were available. |
| Wastes Managed | Leaking gasoline |
| Release Control | NA[a] |
| History of Documented Releases | No specific data were available to aid in determining when the overflow spill occurred. |
| Remedial Action Taken | NA[a] |
| Release Potential | Originally considered high, but it may be lower since the tank was removed. |
| Potential Pathway | Soil, ground water |
| Reason for Release Potential | Documented release to soil and ground water |
| Need for Further Action | Further investigation is recommended to determine whether correctie action is required. |

Notes:

[a] NA = Information not available from file review

**Date of Closure**

The unit is active.

**Wastes Managed**

This unit manages the wastewater treatment sludge that has been dehydrated and stored while awaiting off-site transport.

**Release Controls**

No information was found in the files.

**History of Documented Releases**

No releases from this SWMU have been documented.

## 3.15 SWMU NO. 15 - BUILDING 408 PIPELINE AREA

**Description**

The building 408 pipeline area is located on the north side of building 408 and is associated with leaking underground diesel fuel lines that have contaminated the surrounding soil and perched ground water. The affected area is estimated to cover 32,000 square feet and extend to depths of from 6 to 10 feet bgs.

**Startup**

No information was found in the files.

**Date of Closure**

In 1971, the lines were capped, abandoned in-place, and replaced by an aboveground supply line.

**Wastes Managed**

This unit managed diesel fuel.

**Release Controls**

No information was found in the files.

**History of Documented Releases**

In 1971, the pipeline was discovered to be leaking. In 1986, diesel-contaminated soil was discovered in the vicinity of the buried pipeline. On two separate occasions (1986 and 1987), diesel fuel was discovered in nearby storm sewers. The fuel eventually flowed to Duck Creek. One of these discharges required containment and pumping of diesel fuel from the creek.

## 3.16 SWMU NO. 16 - BUILDING 415 UST AREA

**Description**

The building 415 UST area is located just north of building 415. This area is the site of an abandoned diesel tank that was closed in-place in 1990. The diesel fuel leak, which contaminated the soil and perched ground water within the former tank hold area, is believed to have come from the tank pipeline. The volume of contaminated material may be as little as 30 cubic yards and may extend to depths of from 10 to 12 feet bgs (Dames and Moore, 1992).

**Startup**

No information was found in the files.

**Date of Closure**

The tank was closed in-place in 1990.

**Wastes Managed**

This unit managed diesel fuel.

**Release Controls**

No information was found in the files.

**History of Documented Releases**

The UST was closed in-place in 1990. The diesel fuel leak was discovered in the line from the tank upon the removal of the line.

## 3.17 SWMU NO. 17 - BUILDING 405 SANITARY SEWER LINE AREA

**Description**

The building 405 sanitary sewer line area is located north of building 405. Leakage from this sewer line has affected the surrounding soil at depths of from 4 to 11 feet bgs. Data concerning the volume of affected material were not found in the files.

**Startup**

No information was found in the files.

## 4.2 AOC NO. 2 - BUILDING 405/408 UST AREA

The building 405/408 UST area is located between buildings 405 and 408. The UST in this area was removed in 1989 and found to be in good condition. An overflow resulted in a gasoline spill that affected the soil and perched ground water. Data concerning the volume of affected material, start-up dates, or release controls were not found in the files.

# 5.0 CONCLUSIONS AND RECOMMENDATIONS

Seventeen SWMUs and two AOCs were identified at the Alcatel facility. No documented releases have occurred from SWMUs No. 1 to 14. PRC recommends no further action for any of these units.

PRC recommends further investigation of the soil and ground water within the building 408 pipeline area (SWMU No. 15) to determine whether corrective action is required. Sampling of soil and ground water during a Phase III site assessment has shown that the area around the building 408 pipeline is contaminated. This underground pipeline was abandoned in 1971 and was later replaced by an aboveground supply line. Although about 2,500 cubic yards of contaminated soil were removed in 1986, the recent soil and ground-water sampling indicate that as much as 11,852 cubic yards of contaminated soil may remain (Dames & Moore, 1992). The potential for releases to environmental media is detailed below.

Ground water associated with this unit is contaminated. Shallow ground water represents discontinuous perched zones most frequently associated with relatively permeable backfill materials within former excavations, and sand and silt layers that receive recharge from precipitation.

The potential for a release to surface water is moderate. Associated diesel fuel has been found twice in facility storm sewers. It ultimately entered nearby Duck Creek. In addition, contaminated ground water can enter surface waters such as Duck Creek by fractures in the Austin Chalk Formation and overlying soils.

The potential for a release to air is low. The highest concentrations of contaminants

associated with this unit are present at between 4 and 11 feet bgs.

Soil associated with this area is contaminated. Although soil permeabilities generally decrease outside of excavated areas, contamination may migrate because of soil flushing during rain.

PRC recommends further investigation of the soil and ground water within the building 415 UST area (SWMU No. 16) to determine whether corrective action is required. Sampling of soil and ground water during a Phase III site assessment has shown that the area around the building 415 UST is contaminated. Recent soil and ground-water sampling indicate that the volume of contaminated material may be as little as 30 cubic yards (Dames & Moore, 1992). The potential for releases to environmental media is detailed below.

Ground water associated with this unit is contaminated. Shallow ground water represents discontinuous perched zones most frequently associated with relatively permeable backfill materials within former excavations, and sand and silt layers that receive recharge from precipitation.

The potential for a release to surface water is moderate. Although no release has been documented from this facility to surface water, contaminated ground water can enter surface waters such as Duck Creek by fractures in the Austin Chalk Formation and overlying soils.

The potential for a release to air is low. The highest concentrations of contaminants associated with this unit are at about 3-1/2 feet bgs.

Soil associated with this area is contaminated. Although soil permeabilities generally decrease outside of excavated areas, contamination may migrate because of soil flushing during rain.

PRC recommends further investigation of the soil and ground water within the building 405 sanitary sewer line area (SWMU No. 17) to determine whether corrective action is required. Sampling of soil during a Phase III site assessment has shown that the area around the building 405 sanitary sewer line is contaminated. The potential for releases to environmental media is detailed below.

The potential for a release to ground water is moderate. The ground water was not sampled within this area but could become contaminated through contact with contaminated soils. No ground-water release has been documented in this area.

The potential for a release to surface water is moderate. Although no release has been documented from this facility to surface water, contaminated ground water can enter surface waters such as Duck Creek by fractures in the Austin Chalk Formation and overlying soils.

The potential for a release to air is low. The highest concentrations of contaminants associated with this unit are from 4 to 11 feet bgs.

Soil associated with this area is contaminated. Although soil permeabilities generally decrease outside of excavated areas, contamination may migrate because of soil flushing during rain.

PRC recommends further investigation of the soil and ground water within the building 407 UST area (AOC No. 1) to determine whether corrective action is required. Sampling of soil and ground water during a Phase III site assessment has shown that the area around the former building 407 UST is contaminated. The tank was removed in 1988, but the backfill material and perched ground water were contaminated by diesel fuel spilled during tank removal. Recent soil and ground-water sampling indicate that the volume of contaminated material may be as little as 30 cubic yards (Dames & Moore, 1992). The potential for releases to environmental media is detailed below.

The potential for a release to ground water is moderate. The ground water was not sampled within this area but could become contaminated through contact with contaminated soils. No ground-water release has been documented in this area.

The potential for a release to surface water is moderate. Although no release has been documented from this facility to surface water, contaminated ground water can enter surface waters such as Duck Creek by fractures in the Austin Chalk Formation and overlying soils.

The potential for a release to air is low. The highest concentrations of contaminants associated with this unit are from 4 to 11 feet bgs.

Soil associated with this area is contaminated. Although soil permeabilities generally decrease outside of excavated areas, contamination may migrate because of soil flushing during rain.

PRC recommends further investigation of the soil and ground water within the building 407 UST area (AOC No. 1) to determine whether corrective action is required. Sampling of soil and ground water during a Phase III site assessment has shown that the area around the former building 407 UST is contaminated. The tank was removed in 1988, but the backfill material and perched ground water were contaminated by diesel fuel spilled during tank removal. Recent soil and ground-water sampling indicate that the volume of contaminated material may be as little as 30 cubic yards (Dames & Moore, 1992). The potential for releases to environmental media is detailed below.

Ground water associated with this unit is contaminated. Shallow ground water represents discontinuous perched zones most frequently associated with relatively permeable backfill materials within former excavations, and sand and silt layers that receive recharge from precipitation.

The potential for a release to surface water is moderate. Although no release has been documented from this unit to surface water, contaminated ground water can enter surface waters such as Duck Creek by fractures in the Austin Chalk Formation and overlying soils.

The potential for a release to air is low. The highest concentrations of contaminants associated with this unit are between 4 and 6 feet bgs.

Soil associated with this area is contaminated. Although soil permeabilities generally decrease outside of excavated areas, contamination may migrate because of soil flushing during rain.

PRC recommends further investigation of the soil and ground water within the building 405/408 UST area (AOC No. 2) to determine whether corrective action is required. Sampling of soil and ground water during a Phase III site assessment has shown that the area around the former building 405/408 UST is contaminated. The UST in this area was removed in 1989 and found to be in good condition; the soil and ground-water contamination resulted from a gasoline spillage that occurred when the tank was overfilled. The potential for releases to environmental media is detailed below.

Ground water associated with this unit is contaminated. Shallow ground water represents discontinuous perched zones most frequently associated with relatively permeable backfill materials within former excavations, and sand and silt layers that receive recharge from natural and artificial precipitation.

The potential for a release to surface water is moderate. Although no release has been documented from this unit to surface water, contaminated ground water can enter surface waters such as Duck Creek by fractures in the Austin Chalk Formation and overlying soils.

The potential for a release to air is low. The highest concentrations of contaminants associated with this unit are between 4 and 11 feet bgs.

Soil associated with this area is contaminated. Although soil permeabilities generally decrease outside of excavated areas, contamination may migrate because of soil flushing during rain.